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ABSTRACT

Anxiety, or stress and tension, is a major problem in education for teachers as well as students. Training in the self-management of stress and tension seeks to help a person learn how to reduce tension and how to change the stress-producing features of the environment. The training program described in this paper is based on a variation of systematic desensitization, but emphasizes the use of relaxation as an active coping skill in everyday life situations. Specifically, the training program attempts to teach the following: (1) the nature of stress and tension; (2) the way in which each individual personally experiences stress and tension; (3) the identification of environmental and cognitive events which trigger stress and tension behaviors (tensations); (4) development techniques for deep relaxation; (5) the use of "instant relaxation" in those situations which cause stress; and (6) ways to change physical and social events which cause tension. The training program, a self-contained nine-hour workshop, is described in this paper. Data and reactions from a preliminary evaluation are also included. (Author)

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SELF-MANAGING STRESS AND TENSION

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SELF-MANAGING STRESS AND TENSION[1]

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Anxiety, or stress and tension, is a major problem in education for teachers as well as for students. Kaplan (1959), for example, suggested that over 200,000 teachers were affected by anxiety, which in turn could be expected to affect at least 5 million students! Several large-sample surveys of teachers have found that as many as 75% of teachers responding indicated they worked under moderate to considerable stress and tension (National Educational Association, 1967). The excessive stress and tension of teachers also seems to have various negative effects on student behavior (cf. Coates & Thoresen, in press; Koon, 1970; Petrusich, 1966). In addition, student anxiety itself has been found to be related to low academic achievement, poor self-esteem and other inappropriate student behavior (e.g., Gaudry & Spielberger, 1971).

Anxiety is clearly a problem at several levels of the educational system. What can the counselor and other professional helpers do about it? A major source of difficulty in finding a solution arises from the way in which anxiety has been conceptualized. Like many so-called personality traits, anxiety has been studied extensively but still remains little understood. Researchers have typically defined it as a global construct and measured it by means of paper-and-pencil questionnaires. These psychometrically oriented researchers have worked very hard to rank individuals on the quantity of this pervasive and troublesome "trait".

After years of research and scores of published papers, some problems have emerged in conceptualizing anxiety as an underlying personality trait.

First, the notion that questionnaires can predict the behavior of individuals without regard to specific situations has been challenged. Mischel (1973) has shown that personality inventories (including anxiety questionnaires) generally fail to provide strong or useful predictions of behavior because persons tend to act differently in specific life situations. A person is seldom anxious all the time. While there is some consistency in a person's actions over time and in various situations, the view that personality traits "cause" behavior has become untenable. The implication of this is that anxiety, like other behavioral responses, tends to be a highly specific reaction to particular stress-arousing situations.[2]

Sarbin (1968), in tracing the history of the concept, found that the term anxiety was originally used metaphorically to describe a choking or tense physical sensation. Unfortunately, anxiety soon acquired the status of a trait and was used to connote an underlying force that somehow caused anxious behavior; a tautology was created and a metaphorical description became an "explanation" of behavior. Thus, a person who acts tense is described as anxious, and anxiety is cited as the source of this stress and tension. What sounds like a profound explanation of an important problem turns out, on close examination, to be no explanation at all; it does not offer an improved understanding of why persons get anxious and what can be done to alter anxious behavior.

Tensations

What are the alternatives? One is to view anxiety as specific individual responses to particular situations. Most persons experience anxiety in

one or a combination of response areas: physiological (e.g., stomach tension, pain in the shoulders, increased heart rate, increased breathing rate, sweating palms and diarrhea); motoric (e.g., shaking, stuttering, loss of coordination, trembling); and cognitive (e.g., anxious thoughts, such as "I'm feeling uptight," "I'm confused, what can I do", and images, such as a mental picture of being sharply criticized by your close friend). We have coined the term "tensations" (a combination of the words tension and sensations) to describe an individual's combination of anxious reactions in these three response areas.

Of course, tensations can be adaptive and useful for the individual in serving as the body's preparation for action. When an individual is tense, his body is "ready to go". Tensations probably helped our paleolithic ancestors escape the physical dangers of the world (Selye, 1974). Even though the dangers in the contemporary world are far more psychological than physical, our bodies are still equipped with mechanisms for physical action. To cope with tensations, we often remove their causes (we steer clear of situations that provoke them), or we escape in order to avoid their unpleasant consequences. Too often, tensations escalate sharply and get out of control, thus incapacitating the person. The tremendous energy generated is wasted on a broad range of unproductive behaviors such as stuttering, feeling jittery, biting fingernails, and worrying endlessly. Although these reactions may "work" in the sense of reducing some of the stress, they prevent the individual from coping more effectively and efficiently with the situation.

Tensations are triggered by specific environmental and cognitive events. But feeling tense at a particular moment does not necessarily mean that the

individual is going through an unpleasant experience. Rather, these environmental and/or cognitive events, because they have been associated previously with the advent of unpleasant experiences, serve to cue the anticipation of unpleasant consequences for the person. These anticipations then trigger the tensations (see Figure 1). For example,

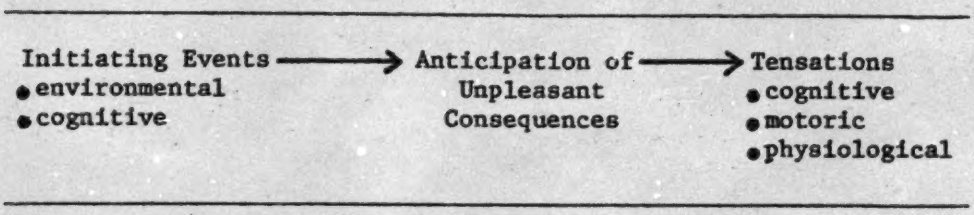

Figure 1

many people experience tensations in the dentist's office, even though they are not at that moment undergoing the unpleasant experience of having their teeth drilled. But being in the room closely associated with the cues for pain (such as the sound of drilling and the smell of medicine) signals the individual to anticipate the pain which leads to his tensations. One person reported that simply seeing the date for a dental appointment circled on her calendar could bring on tensations.

These kinds of experiences are common to many persons. For example, Bill, a junior high school math teacher, may notice on a particular morning that many of his students are shuffling their feet and look disinterestedly out the window (initiating events). Some teachers might simply ignore this, or even fail to notice it. But to Bill these student behaviors represent apathy and boredom. He suddenly imagines (anticipates) being sharply criticized by the principal because he has heard the principal say many times, "If you cannot hold the students' interest, then you have no business being a teacher" (anticipation of unpleasant consequences). Bill's principal has

been known to call this to the attention of his teachers in public. Bill finds himself sweating, stuttering, and worrying about how inadequate he is as a teacher (i.e., experiencing tensations). The cycle accelerates and he becomes more and more tense and more and more irritated. Finally, he bruskly assigns some lengthy seatwork and retreats to his desk to correct papers (or perhaps shuffle them).

Had Bill been able to better manage his tension, he might have modified the lesson, thereby reducing the stress by increasing student interest, thus altering his anxious behavior, but because his tensations got the best of him, this was not possible.

Bill may look for some temporary relief with a couple of martinis in the evening and hope that things will go better tomorrow. Or, he can learn to manage his tensations and take some adventuresome steps to increase the interest and involvement of students. With tensations under control, he can use other skills at his disposal to increase the interest and involvement of students; his thinking processes will not be incapacitated by unproductive stress and tension.

Self-Managing Stress and Tension

Training in the self-management of stress and tension seeks to help the person learn how to reduce tension and how to change the stress-producing features of the environment. The training program described here is based on a variation of systematic desensitization, but emphasizes the use of relaxation as an active coping skill in everyday life situations (Goldfried, 1971; Goldfried & Trier, 1974; Thoresen & Mahoney, 1974). Specifically, the training program attempts to teach the following: (1) the nature of stress and tension; (2) the way in which each individual

personally experiences stress and tension; (3) the identification of environmental and cognitive events which trigger stress and tension behaviors (tensations); (4) how to develop deep relaxation; (5) how to use "instant relaxation" in those situations which cause stress and tension; and (6) how to change physical and social events (the environment) that may be causing stress and tension. The training program is a self-contained nine-hour workshop that does not require the services of a skilled leader. Trainees learn these skills in a group by following a manual which includes instructions, videotapes, games, and homework assignments. A description of this training follows. Following the description, we will present some data and reactions from the preliminary evaluating of the training program with two experienced teachers.

Training Program

Session One

This session, which lasts from two to three hours, provides an introduction to the training program, presents one way of thinking about stress and tension, provides some experiences to assist the individual to get in touch with his personal feelings of stress and tension, and introduces relaxation training.

The session begins with a three-minute videotape which introduces the program by relating the facts that many teachers are troubled at various times by stress and tension, and that management of these feelings, like teaching or driving, is a skill that can be learned and applied in one's everyday life.

The trainees are directed to the training manual which outlines the

steps in the program. The group then appoints a leader to direct discussions and move the group from activity to activity. The group holds a general discussion of stress and tension emphasizing ways that each individual experiences stress and events in the school environment that seem to promote it.

Concepts of stress and tension, central to all of the exercises to follow, are next introduced by means of a ten-minute videotape showing Bill, the junior high school math teacher whom we described above. His class is shown getting more and more unruly while Bill gets more and more anxious and less able to handle the situation. His salvation is the end of the class period. A narrator explains the concepts of stress and tension focusing on initiating events, anticipation of unpleasant consequences, the experience of tensations and what purpose they serve. The narrator then interviews Bill to show how his experiences correspond to the description of anxiety. A short quiz follows to make sure that trainees have grasped the central concepts.

Trainees are next helped to identify further their own personal feelings of stress and tension. This is a very important step because the feelings identified at this point are used later as a cue to use the instant relaxation procedure. This "getting in touch" process is accomplished in two ways. First, a videotape of a stressful situation is shown. It is social studies time, and the school principal arrives on the scene just as students are returning from recess and announces that he is there to observe. He asks the teacher for her behavioral objectives for the hour, plans for individualizing the lesson, and methods for evaluating student

learning. The teacher, obviously tense because of this unannounced and uninvited intrusion, becomes visibly upset. Following the videotape the trainees identify the tensations they experienced while watching the tape. They try to determine if these are the same tensations they normally experience in school, and if there are one or two that really predominate. They are asked to be as specific as possible in describing these tensations.

The next step is to teach trainees how to notice their tensations while engaging in another activity. This is accomplished through the "Anxiety Exercise". Trainees divide themselves in groups of four to six, each group taking an envelope from the training package. Each individual, in turn, pulls a card from the envelope, is given thirty seconds to prepare, and must speak extemporaneously on the topic on the card for two minutes. (Topics include such things as what is self-esteem, anxiety, a good teacher, intelligence, embarrassment.) After the exercise, a discussion follows highlighting each person's tensations before, during, and after the exercise.

The trainees are then introduced to deep muscle relaxation. The technique used is progressive relaxation, which proceeds in three separate steps beginning with muscle relaxation, progressing to the use of a combination of muscle relaxation and imagery, and finally to the use of imagery alone. In this first relaxation session, Bill, the anxious junior high teacher, is shown on videotape going through the steps of deep muscle relaxation guided by a therapist. Trainees are asked to relax along with Bill and to practice at home using an audio tape of the relaxation procedure.

For homework, trainees are asked to become aware of their tensations both at home and in school. To facilitate this process, the training package contains "worry beads" (beads strung on leather) which can be used by the trainees to count their tensations. This helps them begin to distinguish the situations in which tensations most frequently occur. They are asked to wear and use these until the next session.

Session Two

This session is designed to help the trainees further identify their tensations, recognize environmental cues which serve as initiating events, and practice deep relaxation again.

The trainees first discuss the homework assignment, reporting how many times tensations seemed to occur, and talking about difficulties of noticing them during a busy day. Then they are introduced more systematically to the importance of recognizing those situations that seem to cause the greatest tensations. After a brief discussion, they write down the experiences, either actual or anticipated, which seem to be most unpleasant or hurtful.

The group talks about these experiences and highlights commonalities which may exist. They then play the "Armchair Anxiety Exercise". This exercise helps the trainees understand better the distinction between anticipating and actually experiencing unpleasant consequences, identify some interpersonal situations which are unpleasant for them, and further pinpoint their tensations. Breaking into groups of three, each group takes one of the "Armchair Anxiety Packets" from the package. Each member of the group takes turns being victim and aggressor in scenes involving unpleasant interpersonal exchanges. These exchanges include: a teacher interviewing

for a job with the principal and vice-principal; a conference between the teacher, a student who has not been doing well in school, and his parents; a teacher accused of favoritism defending herself to the principal and an angry parent; a student teacher being given evaluative feedback by a master teacher and supervisor. After the exercise, the trainees discuss when their tensations were most predominant and what initiating events seemed to cause them.

Relaxation II follows on videotape, again involving Bill and the therapist. The exercise this time makes less use of muscular tension and greater use of positive imagery to achieve deep relaxation.

Finally, the trainees are reminded once again of the distinction between actual unpleasant experiences and anticipations of those experiences, both of which can produce tensations. As a homework assignment, they are given a 3x5 index card and asked to notice and write down both their tensations and the environmental and cognitive events triggering those feelings.

Session Three

This session brings together everything that has been learned thus far and shows the trainee how to apply the techniques to everyday living.

First, trainees discuss the tensation-initiating events they recorded, and problems in noticing these are discussed. Working with the events supplied by the members, the group attempts to clarify further the distinction between intrinsically unpleasant experiences and those that are unpleasant merely because they cue anticipation of an unpleasant experience.

Relaxation III is then played on the videotape and practiced by the group members. This exercise relies solely on the use of imagination to achieve deep relaxation.

Two specific methods for reducing tensations in problem situations are next discussed and role-played. First, the concept that tensations can be used as signals for action (which can reduce tensations) is discussed. Self-disclosure and disarming are offered as two methods for using tensations productively. It is explained that self-disclosure can reduce tensations by getting them out in the open and acknowledging them. Disarming involves rearranging the environment in such a way as to prevent the occurrences of anxiety-producing events. Two videotapes showing teachers in tension-arousing situations are then shown. In one, the supervisor announces he is in the classroom to observe and, in the other, an angry parent is complaining about treatment his daughter is getting. Following the tapes, trainees discuss and role-play how self-disclosure and disarming could be used in these situations.

Second, instant relaxation is introduced and practiced. Bill, again on videotape, is led through its application while trainees practice along. Briefly, the procedure consists of the individual, upon first noticing the tensation, taking a deep breath and using a covert cue such as the word "Relax", said to himself to induce those feelings of relaxation he has already learned. Trainees are instructed to practice this skill and are also told to establish cues in their own environments to remind themselves to use instant relaxation when they experience tensations.

Evaluating Changes: Results with Two Teachers

In order to evaluate this training program, we first had to determine how to measure anxiety. Many paper-and-pencil psychometrics are available, but we did not want to base our evaluation solely on this measurement strategy. Personality inventories appear to have limited validity (cf. Mischel, 1968),

and reliance on these instruments in previous investigations of teacher anxiety have yielded variable and confusing results (Coates & Thoresen, in press). Physiological indices of anxiety provided another possible measure. Paul (1969), for example, validated the efficacy of progressive relaxation and systematic desensitization in this way. Unfortunately, physiological measures are extremely sensitive to experimental conditions, and usually require the person to be stationary and inactive in order to reduce unwanted variability.

As mentioned previously, anxiety is a descriptive term which refers to physiological, motoric, and cognitive behaviors. Thus, we decided to use a measurement strategy that hopefully would measure two of these behavioral areas. Subjective experiences of anxiety were measured using the State-Trait Anxiety Inventory: STAI, A-Trait (Spielberger, Gorsuch, & Lushene, 1968). In-depth interviews were also conducted to assess possible cognitive and physiological changes, the effects of anxiety on teaching, and perceptions of the training experience. Both the STAI and interviews were administered during baseline, after training, and at the second followup.

Additionally, an observation instrument was developed to measure the motoric manifestations of stress and tension. The Teacher Anxiety Observation Schedule was designed to record the frequency of certain behaviors associated with anxiety. Specifically, the following behaviors were measured:

1. Speech Disfluencies - Teacher's ongoing speech is interrupted by, is stopped, or changes abruptly in the middle of a word, sentence, or thought; is repetitious of immediately preceding verbalization.

2. Body Touches - Rubs body with hand or fingernail; pushes or adjusts glasses, bracelets, hair; looks at watch.
3. Clears Throat - Audibly makes a rasping sound in throat as if to clear phlegm.
4. Moistens Lips - Moves tongue across lips.
5. Flips Pages/Plays with Objects - Turns pages in notebooks; moves object around in fingers, e.g., pencil, chalk, paper, hair. If object is being held in normal use position, or to point with, this is not scored. Action begins when object is moved out of normal use position or is touched by other hand. Stops when returned to normal use position.

These categories derived from two sources. Paul (1966) used the last four categories in his investigation of the effects of systematic desensitization in reducing speech anxiety, finding that the categories reliably discriminated between stressful and non-stressful speakers. The remaining category, speech disfluencies, was derived from Mahl's (1959) work to develop observable manifestations of various emotional states.

The observation schedule requires the observer to note if each of these behaviors occurs within sequential 10-second intervals (formally termed a sign system, Rosenshine & Furst, 1973). The resulting data can then be analyzed in terms of the number of 10-second intervals in which the behaviors were observed, or converted to rates by dividing the frequencies by seconds, minutes, or hours. Observers were trained to use this system and achieved .95 reliability (agreements/agreements plus disagreements) within 12 hours of training conducted on three separate days. During the conduct of the study, each observer's reliability was checked daily, and varied from

.95 to .99.

The Research Design

Factorial group designs are used most commonly in psychological and educational research. In these designs, a pool of subjects is selected and randomly assigned to various experimental groups. Pretests, posttests, and sometimes followup evaluations, usually taken at a single point of time, are then compared to determine differences between groups as a result of the various intervening experiences to which they have been exposed.

An alternative strategy is the intensive or single-subject design in which one or a few persons are observed on a day-by-day basis (Glass, Willson & Gottman, 1975; Thoresen, in press). Because fewer subjects are involved, it is possible to observe, in a detailed manner, both the phenomenon under investigation and the process of change as it occurs. Although both research strategies are useful and scientifically sound, we decided to use a single-subject design because: (1) this represented an initial investigation in training teachers to manage their stress and tension using this procedure; (2) we were interested in looking at the stability and variability in anxiety over time; (3) we felt it important to investigate the change process, both immediately and long-term.

Two teachers, recruited by means of an advertisement placed in a local newspaper, were employed in this study. Teacher 1 was a 50-year old male who had been teaching for 18 years. He indicated that stress had been a problem to him for about two years and was experienced primarily as hypertension, hand-shaking, and increases in heartbeat. Problem students, administrator insensitivity, and parental pressure were cited as major

sources of stress. Teacher 2, a 52-year old male, had also taught for 18 years. Stress, a problem for the past eight years, had been experienced as tension in the right arm and shoulder, perspiration, and headaches. He reported that misbehaving students, parental criticism, financial setbacks, and problems with an adolescent son contributed to his ongoing stress.

The specific research design employed is termed a time-lagged control design (Gottman, McFall, & Barnett, 1969). Teacher 1 was observed for 10 days (baseline), trained himself, and was observed for 13 more days. Teacher 2 taught for 16 days, trained himself, and taught for seven more days. A schematic of the research design is presented in Figure 2.

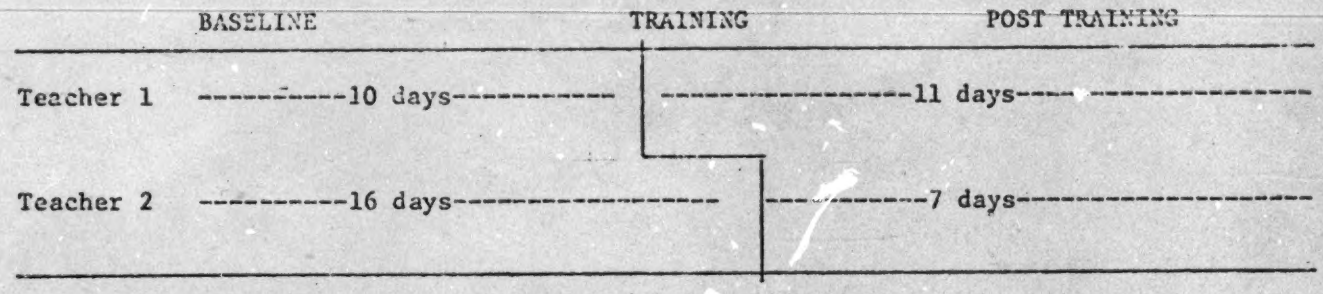

Figure 2: Time Lagged Control Design

Thus, we reasoned that if both teachers' stress was reduced following training, we could conclude that reductions in tension might be associated with the training programs. Conversely, if stress changed independently of the training program or failed to change at all, we might conclude that the program was not effective in helping those teachers learn to reduce stress using the self-management skills.

In order to maintain experimental control, the teachers taught the same series of social studies lessons to similar groups of eight junior high

school students at the same time each day in laboratory classrooms. This also permitted us to videotape the lessons and to observe unobtrusively.

Results

Data for Teachers 1 and 2 are presented in Figure 3 and summarized in Table 1. In general, for both teachers, anxiety was on the rise before training and went down afterwards. Notice that Teacher 2's stress and tension continued to increase while Teacher 1 was using his newly learned skills to reduce anxiety. Only after training did Teacher 2's stress and tension appear to change direction and decrease. This gave us some indication that training, and not other factors, facilitated the observed changes.

The lines going through the data and summarizing them are called the median slope or the lines-of-progress (Thoresen & Anton, 1973, 1974; White, Note 1). The median slope, a corollary of the least squares regression method, is used to derive a line-of-progress (i.e., regression line) in time-series data to describe within-phase data trends and to predict future data points. The median slope is relatively uninfluenced by extreme data points, and makes no assumptions regarding the independence of successive data points.

Three analyses can be performed to describe time-series data using the median slope. First, the value of the line-of-progress is determined by computing the ratio between the initial rate of a phase and the predicted rate seven days later. Fisher's Exact Probability Test (Seigel, 1956) can then be used to determine if the line-of-progress is significantly different from zero (i.e., significantly different from a flat line). During the baseline phase for Teacher 2, for example, anxious behaviors

appear to be increasing at the rate of 1.14 per week, but the Fisher's test indicates that this line is not significantly different from a flat line.

Second, the step change is determined by computing the ratio between the predicted terminal rate of one phase and the predicted beginning rate of the next phase. The binomial test (Siegel, 1956) is used to determine the probability of the observed change. The step change indicates the immediate facilitative effect of the intervention upon the behavior under observation. Referring to Teacher 1, a significant step change down of 1.11 is seen to occur with the introduction of the training procedure. This is significant beyond the .05 level.

Third, the slope change is determined by computing the ratio between the lines-of-progress of adjoining phases. When the two lines of progress differ in direction, the two lines are multiplied rather than divided, and the binomial test is again used to determine the probability of the observed change. The slope change yields information regarding the long-term effects of the intervention upon the behavior (i.e., the behavior may change gradually rather than immediately). Referring again Teacher 1, a significant downward slope change of 1.13 is observed to occur between baseline and posttraining phases.

As indicated in Table 1, the step change for Teacher 1 was statistically significant ($p=.046$), while the step change for Teacher 2 was marginally non-significant ($p=.06$), indicating that the training did have some immediate effects in reducing both teacher's stress. Important too, however, is the finding that the direction of slopes and the difference in slopes for both teachers were statistically significant. Thus, during

baseline, stress was stable or slightly accelerating, but training in stress-management resulted in a significant shift in the direction of the line-of-progress for both teachers.

Subjective anxiety appears to have been reduced as well. Both teachers scored lower on the STAI following training (Teacher 1: pre = 46, T-score = 59; post = 22, T-score = 29; Teacher 2: pre = 37, T-score = 51; post = 32, T-score = 46). In the post-study interviews, both teachers reported that problem students had provided the major source of stress during the experiment, although they felt that, overall, the experimental environment was much less stressful than the normal school environment. Both also rated the training very favorably and useful. Teacher 1 indicated that he tried to handle stress differently after training, but really did not notice that it improved his teaching. Teacher 2 felt that the training helped him to relax and that it improved his ability to handle discipline problems in the classroom and at home.

Followup

The proof of the pudding, of course, lies in these teachers' ability to use the techniques in their everyday classrooms. Thus, we felt it was important to collect followup evaluations after the teachers returned to school. In the fall, approximately one and one-half months following the study, observers were placed in each teacher's classroom for one hour per day for seven days to record stress and tension behaviors using the Teacher Anxiety Observation Schedule. A second followup evaluation, conducted three months later, included direct observation, another administration of the STAI, and an in-depth interview.

Behavioral observation data for both followup evaluations are summarized

in Table 1. The rate of anxious behaviors per minute for both teachers shows a dramatic decrease in both followup evaluations. Means and median rates are below baseline and posttraining rates, and significant step changes attest further to the observed reductions. Because the followups were conducted in each teacher's own classroom, as contrasted with the laboratory setting used for the conduct of the experiment, it is not possible to determine if the reductions are due to continued use of the relaxation techniques or the different environment. But, at the very least, it can be concluded that stress and tension, as measured by the observation schedule, did not rise again.

Self-reported anxiety (STAI), assessed during the second followup, appeared to rise slightly for Teacher 1 (raw score = 41, T-score = 54) and remain fairly stable for Teacher 2 (raw score = 35, T-score = 35). Teacher 1 indicated, during the interview, that he had continued to use deep muscle relaxation following the termination of the experiment, but had subsequently explored other procedures (e.g., self-hypnosis) in order to develop a more personally satisfying relaxation procedure. Despite a considerable number of stress provoking events, he felt that he been able to remain fairly calm during the school year. Teacher 2 reported that he continued to use relaxation once or twice per week. Moreover, he also continued to carry his cue for instant relaxation (i.e., a smooth stone) constantly and used it daily to relax in the classroom.

Some Final Words

These procedures in the self-management of stress and tension appeared to be effective, at least with this short-term evaluation. Further studies are needed to determine its efficacy over a longer period of time, with

differing persons and in different situations. Other possibilities for extending the techniques to students, business managers and other professionals should also be explored.

Footnotes

[1] The program described was supported by the Stanford Center for Research and Development in Teaching as part of a program directed by the second author (concerned with the self-control of social-emotional behaviors in educational settings). The participation of Lee Appleton, Jane Anton and David R. Hubbard, Jr. is gratefully acknowledged.

[2] It is important to note that the term "behavior" denotes the full range of a person's action, including what happens within the person such as thoughts, images, and physiological actions.

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Figure 3: Anxious Behaviors Per Minute for Teachers 1 and 2

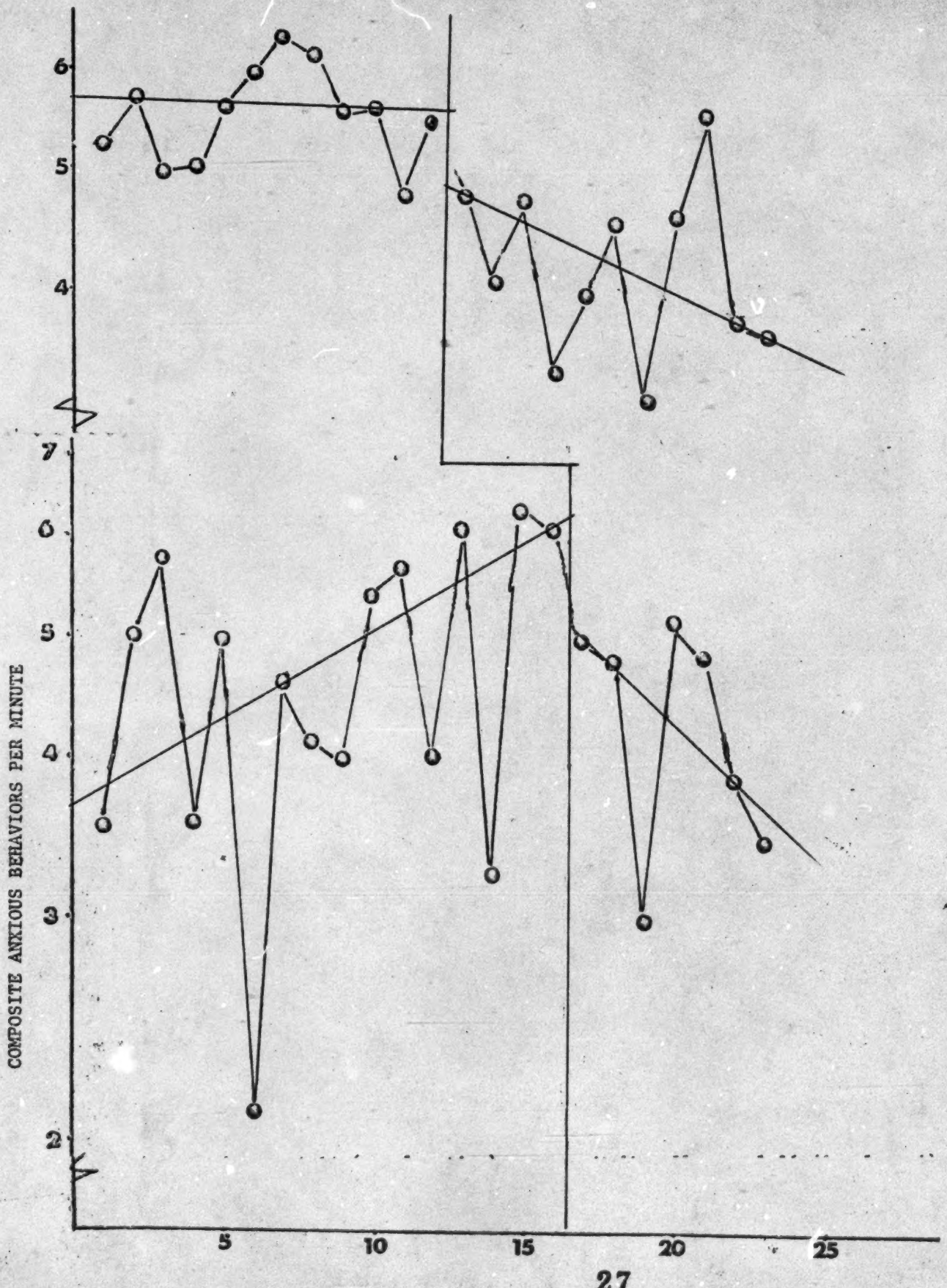

Table 1

Analysis of Composite Anxious Behaviors per Minute for Teachers 1 and 2

		Phase			
		Baseline	Posttraining	First Followup	Second Followup
Teacher 1	Mean	5.49	4.18	1.96	0.99
	Median	5.52	4.50	1.41	0.93
	Standard Deviation	0.49	0.65	1.27	0.25
	Slope	1.00	÷ 1.13	÷ 1.55	x 1.16
	Step Change	÷ 1.11 *	÷ 1.79 *	÷ 2.09 **	
	Slope Change	÷ 1.13 **	÷ 1.37	x 1.80	
Teacher 2	Mean	4.71	4.01	0.91	0.75
	Median	5.00	4.76	0.97	0.70
	Standard Deviation	1.18	0.90	0.40	0.13
	Slope	x 1.14	÷ 1.29	x 1.02	x 1.06
	Step Change	÷ 1.21	÷ 3.18	÷ 1.74 **	
	Slope Change	÷ 1.47 **	x 1.32	x 1.04	

Note: X indicates increasing or step up; ÷ indicates decreasing or step down.

* $p < .05$ ** $p < .01$